ACKNOWLEDGMENTS

This work was carried out at the Laser Surface Processing Laboratory, Faculdade de Ciências da Universidade de Lisboa (FCUL), under the guidance of Professor Olinda Conde which first I would very much like to thank for supervising my thesis. Without her initiative and support, this thesis would never have been written. Under her guidance I was introduced to different techniques and processes in materials research, helping acquire an overview of the field. I would also like to thank Professor Luisa Paramês and Professor António Jorge Silvestre for sharing their insights into PLD and CVD, respectively. During his post-doc fellowship at FCUL, I worked closely with Ernesto Jimenez Villar, whose dedication to experimental work was a great inspiration.

Through my entire fellowship period, I had the pleasure of sharing office and laboratory with Pedro Sousa, a fellow student who completed his thesis last year; I wish him all the best.

In analyzing the thin film samples produced in the course of my work, I relied on help from a number of people. Professor Lesley Cohen and Dr. William Branford of Blackett Laboratory, Imperial College London, UK, measured my samples by Vibrating Sample Magnetometer and Magnetic Circular Dichroism Spectroscopy. Professor Margarida Cruz at FCUL provided the Superconducting Quantum Interference Device (SQUID) measurements while Professor Rui Coelho da Silva at Instituto Tecnológico e Nuclear assisted with Rutherford Backscatering Spectrometry (RBS). Professor Ana Rego and Isabel Nogueira, at Instituto Superior Tecnico, helped with the X-ray Photoelectron Spectroscopy (XPS) and Field Emission Scanning Electron Microscopy (FEG-SEM), respectively. Dr. Ana Viana at Instituto de Ciência Aplicada e Tecnologia provided Atomic Force Microscopy (AFM) measurements. Dr. Hugo Águas at Faculdade de Ciências e Tecnologia - Universidade Nova de Lisboa helped with characterization of my samples by Spectroscopic Ellipsometry (SE). I wish to thank each of these for their assistance, without which I would have achieved little.

I also gratefully acknowledge Fundação para a Ciência e a Tecnologia (FCT) for Ph.D. grant BD16573/2004, which made part of this work possible, and FCUL – Physics Department for accepting me as Ph.D. student.
Sadly, my parents did not live to see me complete my PhD. I am indebted to them for their faith in my strength and for encouraging me in everything I set out to do, even when it meant leaving Romania under my father’s final illness.

A special thanks to my husband Gellu Popovici for his help, his professional counsel and his steadfast emotional and practical support.

Finally, I would like to express my deep gratitude to my friend and language consultant, Inger Rudvin, and her husband Yonathan Berhane, for their support and friendship during my fellowship period. My most heartfelt thanks go to Inger, to whom I dedicate this work, for her devotion and support at critical moments of my life during these years.